

# Notes on some leaf beetles from the Passam area, East Sepik Province, and Port Moresby area, Central Province, Papua New Guinea

(Insecta, Coleoptera, Chrysomelidae)

By **T. J. Hawkeswood** and **G. A. Samuelson**

Hawkeswood, T. J. & G. A. Samuelson (1995): Notes on some leaf beetles from the Passam area, East Sepik Province, and Port Moresby area, Central Province, Papua New Guinea (Insecta, Coleoptera, Chrysomelidae). – *Spixiana* **18/2**: 165-176

A list and notes are provided on 27 species of Chrysomelidae (Coleoptera) from primarily the Wewak-Passam area, East Sepik Province and secondarily from the Port Moresby area, Central Province, Papua New Guinea. Field observations were made from March to December 1989 by TJH. Host plants are recorded for 20 species or 74 % of all chrysomelids treated. Data on plant hosts are also reported.

Trevor J. Hawkeswood, c/- North Star Caravan Resort, Hastings Point, New South Wales 2489, Australia.

G. A. Samuelson, J. Linsley Gressitt Center for Research in Entomology, Bishop Museum, P. O. Box 19000-A, Honolulu, Hawaii 96817, U.S.A.

## Introduction

Plant host associations and the biology of New Guinean Chrysomelidae remain incompletely known. This is especially so for members of the Eumolpinae, Chrysomelinae, Galerucinae, and Alticinae. However, the late J. L. Gressitt provided much impetus in gaining biological information on many of these beetles, particularly Hispinae. Since Gressitt's death in 1982, further knowledge has also been forthcoming, and continued in part by one of us, GAS. Currently, rainforest canopy studies in Papua New Guinea (PNG) have produced a wealth of chrysomelids (Allison, Miller, & Samuelson, unpublished), and associated studies on feeding habits have been ongoing (Basset & Samuelson, unpublished). In 1989, opportunity arose for one of us, TJH, to spend nine months in PNG, and the results of that visit are reported here. Most of the survey was undertaken in village gardens and bordering rainforests in the Wewak-Passam area. In addition, part of March 1989 was spent in the woodlands and gardens in the Port Moresby area, where some collections and observations were undertaken. A part of the information gained from these field studies was published elsewhere (Hawkeswood 1991).

## Material and Methods

### A. Study area, climate and vegetation.

Observations and collections of chrysomelids were undertaken mostly in and around the village of Passam (3°45'S, 143°35'E) and around Wewak (3°33'S, 143°38'E) in East Sepik Province, PNG. The area receives an average monthly rainfall ranging from 128 mm to 225 mm and maximum daily temperatures range from 29 °C to 35.5 °C, while minimum daily temperatures range from 18 °C to 22 °C throughout the year. The first half of 1989 was abnormally wetter than usual, and temperatures were

cooler than average. The humidity of this area remains high, commonly between 70 % and 90 % throughout the year. The highest humidity readings, December to May, correspond to larger amounts of cloud cover, which varies from 65 % to 92 % daily. The average altitude of the Passam area is 960 m.

According to Robbins (1968) the vegetation of the Passam-Wewak area is composed of lowland hill (rain) forest with three main tree layers. The rainforest is of a very mixed composition with more than 60 tree species having been recorded from the canopy layer alone (Robbins 1968). Some of the common and dominant tree and shrub species of the area include: *Canarium indicum* L. (Burseraceae), *Alstonia scholaris* R. Br. (Apocynaceae), *Intsia bijuga* (Colebr.) Kuntze (Caesalpiniaceae), *Artocarpus altilis* (Park) Fosberg and *Ficus* spp. (Moraceae), *Spathodea campanulata* Beauv. (Bignoniaceae), *Pometia pinnata* Forst. f. (Sapindaceae), *Albizia falcataria* L. Back. (Mimosaceae), *Schizomeria serrata* (Hochr.) Hochr. (Cunoniaceae), *Flindersia amboinensis* Poir. (Flindersiaceae), *Euodia* spp. (Rutaceae), *Celtis* sp. (Ulmaceae), *Vitex cofasus* Reinw. (Verbenaceae), *Terminalia kaernbachii* Warb. (Combretaceae), and *Macaranga quadriglandulosa* Warb. (Euphorbiaceae). A large number of shrubs and herbs are to be found as the ground zone stratum and include *Selaginella* sp. (Selaginellaceae), *Pilea* spp. (Pileaceae), *Pteris* spp. (Pteridaceae), *Pipturus argenteus* (Forst.) Wedd. (Urticaceae), *Piper adunca* L. (Piperaceae), and *Spathoglottis rivularis* Schlecht. (Orchidaceae).

## B. Observations and collections of beetles.

Field studies and collections of beetles took place from March to December 1989 by TJH during sunny periods on relatively fine days for up to 2-3 hours at a time when wide transects of the native vegetation and gardens around the villages were walked. Beetles were collected by hand, net, or by beating onto a sheet. Once captured, they were placed in bottles before being taken to the laboratory where they were curated. Later, representatives of all the species were examined by one of us, GAS. Data on beetle behaviour and host plants were also recorded during the 9-month period.

In the treatment below, the subfamily arrangement follows Seeno & Wilcox (1982); arrangement of genera and species appears alphabetically. Most of the specimens were collected by the senior author, abbreviated TJH, in East Sepik Province, ESP but a few records are from Central Province, CP. Specimens are deposited in the TJH collection and in Bishop Museum.

## Annotated list of species

### Subfamily Criocerinae

#### *Lema* sp. near *connectens* Baly

Fig. 1

*Lema connectens* Baly, 1865: 13 (Aru Islands). - Kimoto et al. 1984: 49 (Kuk, Western Highlands Prov. on cardamom; elsewhere on wild gingers from sea level to 2,000 m altitude).

*Lema* (*Petauristes*) *connectens*: Gressitt, 1965a: 156 (Maffin Bay). Material. PNG: ESP: Passam, 25.III., 22.VIII., 17.IX.1989, on leaves of *Alpinia*, TJH (6).

Plant hosts. Zingiberaceae: cardamom, *Elettaria cardamomum* (L.) Maton; various wild gingers. Jolivet (1977: 327) discussed host affinities for *Lema*.

Observations. This species was common on the foliage of *Alpinia* sp. growing at edges of rainforest around the village. Adults produced distinctive feeding marks between the parallel leaf veins of the plant hosts. The beetles were very wary, difficult to catch, and jumped rapidly away from the host plant when disturbed or closely approached. In life, the beetle was bright orange, and black but the orange colour fades to dull yellow testaceous upon death. Larvae were not found but may feed during the night on the leaf laminae and retreat into the leaf bases during the day. The material from Passam may represent an undescribed species.



Figs 1-3. 1. *Lema* sp. near *L. connectens* Baly, Passam, 25.III.1989, TJH, on *Alpinia* sp. (Zingiberaceae) (Scale: 6 mm). 2. *Cadmus* sp. near *C. latus* Gressitt, Passam, 7.VI.1989, TJH, on *Macaranga quadriglandulosa* Warb. (Euphorbiaceae) (Scale: 4 mm). 3. *Phyllocharis apicalis* Baly, Passam, 10.III.1989, TJH, on *Clerodendrum* sp. (Verbenaceae) (Scale: 3.5 mm). (Photos: T. J. Hawkeswood).

### *Liliocerus doryca* (Boisduval)

*Lema doryca* Boisduval, 1835: 533 (Dorei).

*Criocerus doryca*: Weise 1912: 424 (Lorentz-Fluß, Bivak I).

*Liliocerus doryca*: Gressitt 1965a: 141 (various localities throughout New Guinea).

Material. PNG: ESP: Passam, 22.VIII.1989, on foliage of unidentified vine, possibly *Smilax* amongst other vegetation, TJH (1).

Plant hosts. Smilacaceae. Possibly *Smilax*. Jolivet (1977: 327) discussed host affinities for *Liliocerus*.

### *Stethopachys papuana* Gressitt

*Stethopachys papuana* Gressitt, 1965a: 186 (Papua). - Hawkeswood 1991: 283-291 (biology, life-stages, host plants).

Material. PNG: ESP: Passam, 22.VIII.1989, from flowers of *Spathoglottis rivularis*, TJH (3).

Plant hosts. Orchidaceae. *Spathoglottis rivularis* Schlecter. Jolivet (1977: 328) discussed host affinities for *Stethopachys*.

### Subfamily Cryptocephalinae

#### *Cadmus* sp. near *latus* Gressitt

Fig. 2

*Cadmus latus* Gressitt, 1965b: 439 (NE New Guinea: Wau, Karimui; SE New Guinea: Daradae).

*Cadmus*: Gressitt 1965b: 419-445 (key, New Guinea species). - Jolivet 1978: 177 (plant hosts listed as hosts for Australo-Papuan species).

Material. PNG: ESP: Passam, 7.VI., 5.VII.1989, on leaves of *Macaranga quadriglandulosa*, TJH (2).

Plant hosts. Euphorbiaceae: *Acalypha*, *Glochidion*, *Homalanthus*, and *Macaranga*. Myrtaceae: *Eucalyptus*. (Jolivet 1978).

Observations. This beetle was not very common and was encountered only in cleared areas at the edges of rainforest. It was found only on *Macaranga quadriglandulosa* Warb. but no feeding was observed.

## Subfamily Eumolpinae

### *Rhyparida* sp. near *angulata* Gressitt

*Rhyparida angulata* Gressitt, 1967a: 310 (NE New Guinea: E Highlands).

Material. PNG:ESP: Passam, 22.VIII.1989, on leaves of *Phaseolus vulgaris*, TJH (1).

Plant hosts. Fabaceae: *Phaseolus vulgaris* L.

Observations. This was an uncommon species at Passam; feeding was not observed.

### *Rhyparida coriacea* Jacoby

*Rhyparida coriacea* Jacoby, 1895: 57 (New Guinea). - Szent-Ivany & Stevens 1966: 117 (Wau, Morobe Prov.; severe defoliation of *Eucalyptus deglupta*). - Gressitt 1967a: 330 (many localities, mostly NE New Guinea). - Gray 1968: 304 (Goroka, E Highlands Prov.; *E. deglupta* listed as a host). - Gray & Wylie 1974: 72-73 (many hosts listed).

Material. PNG:ESP: Passam, 5.VIII., 11.IX.1989, on leaves of *Phaseolus vulgaris*, on leaves of young plants of *Tectona grandis*, TJH (2).

Plant hosts. Araucariaceae: *Araucaria*. Combretaceae: *Terminalia*. Fabaceae: *Phaseolus vulgaris* L. Myrtaceae: *Eucalyptus deglupta* Blume. Verbenaceae: *Tectona grandis* L.f.

Observations. This was a moderately common species in disturbed sites and at the margins of rainforest adjoining the village.

### *Rhyparida fasciata* Baly

*Rhyparida fasciata* Baly, 1864: 10 (Dorey, NE New Guinea); 1867: 168 (S New Guinea). - Weise 1912: 426 (Etna-Bai). - Gressitt 1967a: 332 (many localities from NW and NE New Guinea).

Material. PNG:ESP: Passam, 6.III.1989, on foliage of *Solanum torvum*, TJH (3).

Plant hosts. Solanaceae: *Solanum torvum* Sw.

Observations. This species was noted only on *Solanum torvum*, a prickly weed species growing commonly on the sides of roads in the study area. The pale yellow eggs measure 1.6-1.8 mm long and were laid in clusters of up to 8 eggs on the abaxial leaf surface towards the margins. Hatching occurred within 5-6 days after eggs were laid. Some young larvae, which were yellow-green with various black spines, grew to the second instar but then died of a probable bacterial attack. Adults were observed from March to September either on the adaxial leaf surfaces or more commonly on the abaxial surfaces where they were better protected by the host's long spines and better hidden by the foliage. Adults fed on the palisade and spongy mesophyll leaf tissues between the sharp spines. Mating occurred on the main stems, petioles, or the adaxial leaf surfaces towards the margins. Feeding damage to leaves resulted in irregular-shaped holes. Younger leaves at the tops of plants were preferred by larvae and adults but older leaves were also eaten by adults. The beetles were very wary and dropped to the ground at the slightest disturbance, where they were well-camouflaged against old leaves or debris.

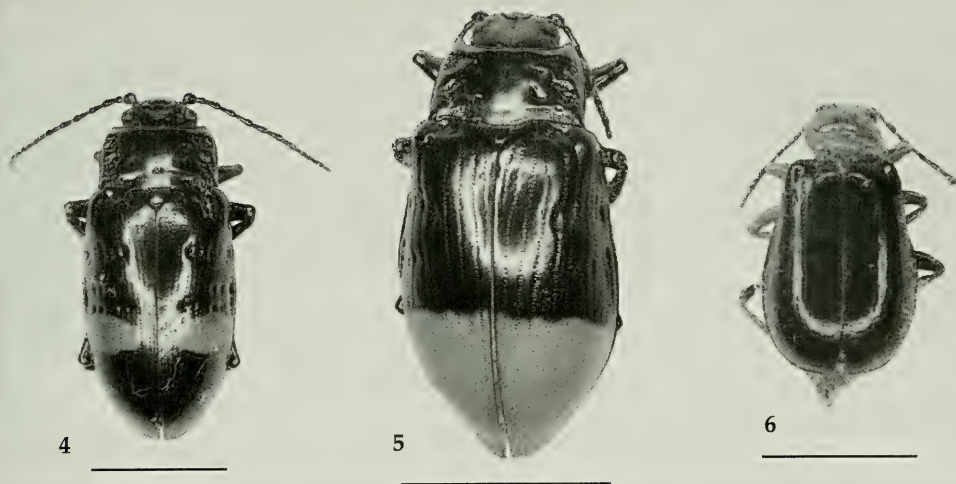
### *Rhyparida huona* Gressitt?

*Rhyparida huona* Gressitt, 1967b: 552 (NE New Guinea).

Material. PNG:ESP: Passam, 12. and 15.V.1989, on foliage of *Phaseolus vulgaris* L., TJH (2).

Plant hosts. Fabaceae: *Phaseolus vulgaris* L.

Observations. This species was uncommon on *Phaseolus*, which grew as garden escapes at the edges of rainforest around the village houses. The Passam material varies slightly from typical *R. huona*.



Figs 4-6. 4. *Promechus bimaculatus* (Weise), Passam, 10.VIII.1989, TJH, from *Boerlagiodendron* sp. (Araliaceae) (Scale: 5 mm). 5. *Promechus* sp. near *P. moskowskii* (Kuntzen), Passam, 17.XI.1989, TJH & J. Manuai, amongst grass (Scale: 10 mm). 6. *Aulacophora papuana* Jacoby, Passam, 15.V.1989, TJH & J. Kuwimb, on pumpkin vines, *Cucurbita pepo* L. (Cucurbitaceae) (Scale: 3 mm). (Photos: T. J. Hawkeswood).

### Subfamily Chrysomelinae

#### *Phyllocharis apicalis* Baly

Fig. 3

*Phyllocharis apicalis* Baly, 1864: 617 (Dorey, New Guinea); 1867: 284 (further description).

Material. PNG: ESP: Passam, 10.III.1989, on *Clerodendrum* at edge of rainforest, TJH (5); same loc., 15.III.1989, on *Clerodendrum* sapling growing in an old rubber (*Hevea brasiliensis*) plantation, TJH and A. Lakamanga (1).

Plant hosts. Verbenaceae: *Clerodendrum*. This is also the host genus for *Phyllocharis* species in Australia, Vietnam, and Thailand (Hawkeswood 1988, Jolivet 1983, Jolivet et al. 1986).

Observations. Adults were common during March and April on *Clerodendrum* which grew as undergrowth saplings in an old rubber plantation and at the edges of rainforest. The beetle was not observed in the rainforest. The brilliant red colouration of parts of this species dulls after death.

#### *Promechus bimaculatus* (Weise)

Fig. 4

*Aesernia bimaculata* Weise, 1917: 197 (Hollandia, other locals., W New Guinea).

*Promechus bimaculatus*: Gressitt & Hart 1974: 280 (many localities throughout New Guinea cited).

Material. PNG: ESP: Passam, 7.VI., 2. and 10.VIII., 12.IX.1989, on leaves of *Boerlagiodendron*, TJH (6).

Plant hosts. Araliaceae: *Boerlagiodendron*. Jolivet (1971: 69, 1974: 120) recorded this genus as a host to *Promechus* (cited as *Aesernia*) in Papua New Guinea. Gressitt & Hart (1974: 282) recorded the species on *Boerlagiodendron* from the Kuper Range, PNG.

Observations. Adults were found only on the broad-leaved species of *Boerlagiodendron* growing in TJH's garden at Passam. They were present from June to early October when they fed extensively on the young foliage at the top of the plant. Feeding resulted in deep incisions to the leaf margins.

*Promechus* sp. near *moszkowskii* (Kuntzen)

Fig. 5

*Aesernia moszkowskii* Kuntzen, 1913: 94 (Taua, W New Guinea).

*Promechus moszkowskii*: Gressitt & Hart 1974: 277 (various localities cited for PNG; no biology).

Material. PNG: ESP: Passam, 17.XI.1989, amongst grass, TJH and J. Manau (1).

Plant hosts. None apparently reported.

Observations. This was the largest chrysomelid collected from the study area, measuring 24 mm. It is a beautiful species, with dark bluish-green head and antennae, golden-green pronotum which is heavily pitted and foveolate at the lateral margins, and basal half of the elytra dark metallic blue with apical half orange-red. The orange-red colour fades after death. The Passam specimen differs somewhat from the typical coloration of *P. moszkowskii*.

**Subfamily Galerucinae**

*Aulacophora indica* (Gmelin)

*Crioceris indica* Gmelin, 1790, Linné, Syst. Nat. ed. 13, 1(4): 1720 (India).

*Aulacophora indica*: Kimoto 1989: 56.

Material. PNG:ESP: Passam, 5.IX.1989, on flowers of pumpkin vines (*Cucurbita pepo* L.) in a vegetable garden, TJH (2).

Plant hosts. Cucurbitaceae: *Cucurbita pepo* L.

Observations. This widespread species was not very common in the study area; it was restricted to pumpkin vines. The natural colouration of the adult is dark orange, excepting the middle and hind legs, but fades to a duller yellow testaceous upon death.

*Aulacophora papuana* Jacoby

Fig. 6

*Aulacophora papuana* Jacoby, 1894: 304 (Andai, New Guinea). - Weise 1908: 318 (Manokwari, Wa Udu).

Material. PNG: ESP: Passam, 15.V., 5., 10. and 17.IX.1989, on flowers of pumpkin growing in village gardens, TJH and J. Kuwimb (6).

Plant hosts. Cucurbitaceae: *Cucurbita pepo* L.

Observations. This was one of the most common *Aulacophora* species noted in the study area and like *A. indica*, it was restricted to pumpkin, where adults fed extensively on the large orange petals and abundant pollen.

*Aulacophora pallidofasciata* Jacoby?

*Aulacophora pallidofasciata* Jacoby, 1904: 495 (New Guinea: Haveri, Ighibirei). - Szent-Ivany & Stevens 1966: 117 (host: pumpkin, *Cucurbita pepo*). - Gressitt & Hornabrook 1977: 62 (figure).

Material. PNG: ESP: Passam, 11.V.1989, on leaves of pumpkin growing in village gardens, TJH (1).

Plant hosts. Cucurbitaceae: *Cucurbita pepo* L.

Observations. This attractive species, with pale yellow head, pronotum and underside of body, and black elytra with a broad, median pale yellow transverse band was not very common in the study area.

*Aulacophora* sp.

Material. PNG: ESP: Passam, 3.IX.1989, on leaves of pumpkin vines, TJH (1).

Plant hosts. Cucurbitaceae: *Cucurbita pepo* L.



Figs 7-9. 7. *Oides subaenea* Jacoby (?), Passam, 15.V.1989, TJH, on leaves of a sapling of *Hevea brasiliensis* (Willd. ex A. Juss. Muell. Arg. (Euphorbiaceae) (Scale: 5 mm). 8. *Prasyptera* sp., Passam, 23.X.1989, TJH, on bark of unidentified rainforest tree (Scale: 5 mm). 9. *Sutrea sexnotata* Bryant (?), Passam, 17.IX.1989, TJH, flying over shrubs in rainforest (Scale: 3 mm). (Photos: T. J. Hawkeswood).

Observations. This species was the largest of the four *Aulacophora* species noted in the study area but was not common. The adult has a dark reddish head and pronotum, and black elytra with a broad yellowish median fascia.

#### *Oides subaenea* Jacoby?

Fig. 7

*Oides subaenea* Jacoby, 1886: 44.

Material. PNG: ESP: Passam, 15.V.1989, on leaves of a sapling of *Hevea brasiliensis*, TJH (1).

Plant hosts. Euphorbiaceae: *Hevea brasiliensis* (Willd. ex A. Juss.) Muell. Arg. Jolivet (1987: 287) reported that the main hosts for *Oides* are Vitaceae: *Cissus*, *Cayratia*, *Vitis*, and *Tetrastigma* but that other families such as Rubiaceae, Malvaceae, Sterculiaceae, and Euphorbiaceae may also be used by *Oides*.

#### *Polysastra* sp. *metallica* group

*Polysastra* Shute, 1983: 220 (*metallica* group Shute, 1983: 227).

Material. PNG: ESP: Passam, 1.VI. 1989, flying, TJH (1).

Plant hosts. Jolivet (1987: 289) reported that *Polysastra* species feed on Sterculiaceae: *Theobroma*, Rubiaceae: *Coffea*, and Zingiberaceae: *Curcuma* and *Elettaria*.

Observations. This species has a dull brownish orange head and pronotum and metallic olive-green elytra. Only one specimen was collected without any hint to its food preferences.

#### *Sastra* sp.

Material. PNG: ESP: Passam, 12.XI.1989, flying, TJH (1).

Plant hosts. Jolivet (1971: 63, 1987: 288) reported a member of this genus feeding on *Trema orientalis* L. at Goroka, E Highlands Prov.

Observations. This species has a dull yellow testaceous head and pronotum and brownish elytra.

*Prasyptera* sp.

Fig. 8

Material. PNG: ESP: Passam, 15. and 23.X.1989, on leaves of *Piper* and on bark of unidentified rainforest tree, TJH (2).

Plant hosts. Piperaceae: *Piper*?

Observations. Only two specimens of this uncommon and apparently undescribed beetle, which apparently mimics a hemipteran, were collected. One was taken from *Piper* leaves in heavily shaded rainforest. Numerous other *Piper* plants in the area failed to produce additional specimens. The head and pronotum of this beetle are bright reddish brown when alive but fades to dull brown after death and the elytra are large, broad and deep metallic green. The sides of the abdomen are broadly flanged.

**Subfamily Alticinae**

*Sutrea sexnotata* Bryant?

Fig. 9

*Sutrea sexnotata* Bryant, 1951: 794 (E Dutch New Guinea).

Material. PNG: ESP: Passam, 17.IX.1989, flying over shrubs in rainforest, TJH (1).

Plant hosts. Samuelson (1967: 157) recorded Zingiberaceae: *Alpinia* as a host for *S. apicalis* Samuelson from Guadalcanal, Solomon Islands; Jolivet (1991: 61) recorded Sterculiaceae: *Theobroma* as a host in PNG for an unidentified species.

Observations. A distinctive black species with yellow pronotum with a black central portion and black elytra with two yellow median spots on each elytron and one sublunate preapical yellow spot on each elytron. M. L. Cox (1991, pers. comm) compared the photo of the Passam specimen with the type in the BMNH and noted pattern differences in the pronotum (black discal mark reaches base) and the elytra (yellow maculae differ in shape and size).

*Xenidea* sp. near *purpureipennis* Baly

*Xenidea purpureipennis* Baly, 1877: 318 (New Guinea: Dorey).

Material. PNG: ESP: Passam, 22.VIII.1989, on leaves of *Piper*, TJH (1).

Plant hosts. Piperaceae: *Piper*. Jolivet (1991: 58) recorded Solanaceae: *Solanum* has a host for *Xenidea*.

Observations. This species was only observed in the shaded parts of the rainforest where it was often common on *Piper*. Feeding caused numerous small holes in the host's leaves. One of us, GAS, made similar observations in forests above Wau. Beetles were found on non-flowering plants. Plants in more light-exposed situations tended not to have these beetles.

**Subfamily Hispinae**

*Ceratispa biroi* Gestro

*Ceratispa biroi* Gestro, 1897: 232 (Tamara, Berlinhafen). - Gressitt 1957: 232 (NW and NE New Guinea); 1960: 32 (W New Guinea: Vogelkop, Cyclops; NE New Guinea: Maprik; larva; hosts): 1963: 627 (various locals. NW and NE New Guinea; larva, hosts).

Material. PNG: ESP: Passam, 5.XII.1989, on leaf of *Freycinetia*? or *Calamus*?, TJH (1).

Plant hosts. Arecaceae: *Areca catechu*, *Calamus*?, small palms, rattans. Questionable host is Pandanaceae: *Freycinetia*? Gressitt (1959: 72) noted that the genus occurs on palms: *Metroxylon*, *Areca*, and rattans in the lowland areas of New Guinea below 400 m elevation. Gressitt (1963: 627) further noted *Areca catechu* and other small palms, more rarely rattans as hosts for this species.





Figs 10-12. 10. *Aspidomorpha adhaerens* (Weber), Passam, 10.III.1989, TJH, on leaves of *Ipomoea indica* (Burm.) Merrill (Convolvulaceae) (Scale: 5 mm). 11. *Aspidomorpha novaguineensis* (Boisduval), Passam, 12.IV.1989, TJH, from leaves of *Ipomoea batatas* (L.) Lamk. (Convolvulaceae) (Scale: 5 mm). 12. *Aspidomorpha socia* (Boheman), Passam, 10.X.1989, TJH, on *Ipomoea indica* (Burm.) Merrill (Convolvulaceae) (Scale: 5 mm). (Photos: T. J. Hawkeswood).

### *Hispellinus* sp.

*Hispellinus*: Gressitt, 1957: 312-314; 1960: 89-90; 1963: 705-707 (mainly treating the New Guinea members).

Material. PNG: ESP: Passam, 2.V., 2.-3.VI. 1989, on grass leaves, probably of *Panicum*, TJH (5).

Plant hosts. Poaceae: *Panicum*?

Observations. This species was restricted to grasses, though no larvae were observed on the hosts.

*H. multispinosus* (Germar) is known to inhabit grasses in Australia (Gressitt 1960: 90, Hawkeswood 1988: 107) and *H. albertisi* (Gestro) has been recorded on sugarcane (*Saccharum* spp.) in PNG (Gressitt 1960: 90).

### Subfamily Cassidinae

#### *Aspidomorpha adhaerens* (Weber)

Fig. 10

*Cassida adhaerens* Weber, 1801, Obs. Ent., 51.

*Aspidomorpha adhaerens*: Spaeth 1914: 70 (Neu-Guinea, Aru, Key-Insel). - Simon-Thomas 1964: 167-264 (Sulawesi, New Guinea, Solomon Islands; noted distribution on northern coast of New Guinea up to 1,000 m; biology: genetics).

Material. PNG: ESP: Passam, 10.III., 5.IV., 2. and 10.VI., 2.VII., 9.VIII.1989, on leaves of *Ipomoea indica*, TJH (12).

Plant hosts. Convolvulaceae: *Ipomoea indica* (Burm.) Merrill. Simon-Thomas (1964: 250) noted that *I. congesta* R. Br. is the main host for this species; *I. tuba* (Schldl.) G. Don. also serves as a host but *I. batatas* (L.) Lamk. is rarely so. Kimoto et al. (1984: 55) noted that it was only observed on wild *Ipomoea* at altitudes of up to 1,200 m.

Observations. This was one of the most common cassidines in the study area where it was apparently restricted to the large vine, *I. indica*; it did not appear to attack sweet potato, *I. batatas*, which was a more common plant in the Passam area, corroborating Simon-Thomas' findings (1964: 250).

### *Aspidomorpha australasiae* (Boisduval)

*Cassida australasiae* Boisduval, 1835: 537 (Nouvelle-Hollande).

*Aspidomorpha australasiae*: Spaeth 1913: 447 (Alkmaar); 1914: 70 (Neu-Guinea).

Material. PNG: CP: Port Moresby, 2.III.1989, on foliage of *Ipomoea*, TJH (1). PNG: ESP: Passam, 22.IV., 2.VI., 22.VIII.1989, on leaves of *Ipomoea indica* (6); Angoram, 12.IX.1989, on leaves of *Ipomoea batatas*, TJH (1); Wewak, 23.IX.1989, same host as preceding, TJH (1); 10 km W of Wewak, 5.XI.1989, same host as preceding, TJH (2).

Plant hosts. Convolvulaceae: *Ipomoea batatas* (L.) Lamk. and *I. indica* (Burm.) Merrill. Euphorbiaceae: *Aleurites fordii* Hemsl. In the Passam area, this beetle was found on both *Ipomoea* but was more common on *I. batatas*. Szent-Ivany (1956: 82) listed *I. batatas* as the host in the Port Moresby area. Lever (1948: 50) and Dumbleton (1954: 15) recorded leaves of *Ipomoea batatas* and *Aleurites fordii* (tung oil) as host for this beetle in the Solomon Islands.

### *Aspidomorpha novaguineensis* (Boisduval)

Fig. 11

*Cassida novaguineensis* Boisduval, 1835: 537 (Nouvelle-Guinee).

*Aspidomorpha novaguineensis*: Spaeth 1909: 28 (Etna-Bai); 1913: 447 (Alkmaar); 1914: 71 (Neuguinea).

Material. PNG: ESP: Passam, 12.IV.1989, from leaves of *Ipomoea batatas*, TJH (1).

Plant hosts. Convolvulaceae: *Ipomoea batatas* (L.) Lamk. Kimoto et al. (1984: 56) included this species in a key of species potentially infesting sweet potato crops in PNG.

Observations. Less common than other cassidines in study area.

### *Aspidomorpha punctum* (Fabricius)

*Cassida punctum* Fabricius, 1801, Syst. Eleuth. 1: 404 (Oceani pacifici Insulis).

*Aspidomorpha punctum*: Spaeth 1909: 28 (Merauke, Etna-Bai); 1914: 72 (Neu-Guinea, Papua).

Material. PNG: ESP: Passam, 22.IV.1989, on leaves of *Ipomoea indica*, TJH (1); Passam, 2.V.1989, on leaves of *Ipomoea batatas*, TJH (2); Angoram, 12.IX.1989, on *Ipomoea* sp., TJH (5); Wewak, 18.IX.1989, on *I. batatas*, TJH (1).

Plant hosts. Convolvulaceae: *Ipomoea indica* (Burm.) Merrill. and *I. batatas* (L.) Lamk. Kimoto et al. (1984: 55) recorded this species from *I. batatas* as well as from native *Ipomoea* in PNG.

Observations. This species was widely distributed and common on *Ipomoea batatas* around settlements in association with *A. australasiae* (Boisd.) and *Cassida astrolabiana* (Spaeth).

### *Aspidomorpha socia* (Boheman)

Fig. 12

*Cassida socia* Boheman, 1856: 114.

*Aspidomorpha socia*: Spaeth 1913: 448 (Bivak-I); 1914: 72 (Neu-Guinea, Papua).

Material. PNG: ESP: Passam, 10.X.1989, on *Ipomoea indica*, TJH (1); near Passam, 11.III. and 22.IV.1989, on *I. indica*, TJH (3).

Plant hosts. Convolvulaceae: *Ipomoea indica* (Burm.) Merrill, *Ipomoea batatas* (L.) Lamk., and wild *Ipomoea*. Szent-Ivany (1956: 82) recorded *I. batatas* from Kerevat, New Britain. Kimoto et al. (1984: 55) recorded the wild *Ipomoea* and included this beetle in a key to cassidine species potentially infesting sweet potato crops in PNG.

Observations. Found only on *I. indica* in the study area.

## *Cassida astrolabiana* (Spaeth)

*Metriorhina astrolabiana* Spaeth, 1903: 131 (Nova Guinea: Astrolabe Bai, Huon Gulf, Berlinhafen, Tamara); 1909: 28 (Merauke).

*Cassida astrolabiana*: Borowiec 1990: 17-18 (widely distributed in northern PNG, including New Britain).

Material. PNG: ESP: Passam, 8.III.1989, from leaves of *Ipomoea batatas*, TJH (2).

Plant hosts. Convolvulaceae: *Ipomoea batatas* (L.) Lamk.

Observations. This was one of the commonest chrysomelids in the Passam-Wewak area and seemed to be restricted to *I. batatas* growing in village gardens and cleared, exposed areas adjacent to rainforest where it flew rapidly in sunlight when disturbed. Adults were present on this host for most of the year.

### Acknowledgements

Our thanks are expressed to Pierre Jolivet of France for reviewing the manuscript and for sending pertinent references, to Lech Borowiec of Poland, Terry N. Seeno of the United States, and F. R. Wylie of Australia for sending pertinent references, and to Peter Bostock of the Queensland Herbarium, Australia, who assisted with the nomenclature of several plant species. Not least is our gratitude to M. L. Cox, International Institute of Entomology, The Natural History Museum, London, for identifying some of the beetles from photographs sent to him via Jolivet.

### References

- Baly, J. S. 1864. Descriptions of new Phytophaga. - Trans. Entomol. Soc. London ser. 3, 1: 611-624  
-- 1867 (1865-1867). Phytophaga Malayana. - Trans. Entomol. Soc. Lond. ser. 3, 4: 1-300, 6 pls.  
-- 1877. Descriptions of new genera and of uncharacterized species of Halticinae. - Trans. Entomol. Soc. London 1877: 283-323.
- Boheman, C. H. 1856. Catalogue of coleopterous insects in the collection of the British Museum, part 9: 1-225
- Boisduval, J. B. A. D. de 1835. Voyage de l'Astrolabe. Entomologie, part 2: 1-716
- Borowiec, L. 1990. A review of the genus *Cassida* of the Australian region and Papuan subregion (Coleoptera: Chrysomelidae: Cassidinae). Genus 1: 1-51
- Bryant, G. E. 1951. New species of Chrysomelidae (Halticinae, Coleoptera) from New Guinea, collected by Miss L. E. Cheesman. - Ann. Mag. Nat. Hist. ser. 12, 4: 794-801
- Dumbleton, L. J. 1954. A list of insect pests recorded in South Pacific territories. - South Pacific Comm. Tech. Paper 79: 1-196
- Fabricius, J. C. 1801. System. Eleuth. 1: 1-506
- Gestro, R. 1897. Hispidae raccolte nella Nuova Guinea dal sig. L. Biro e conservate nel Museo Nazionale di Budapest. - Termesz. Füzet. 20: 449-454
- Gmelin, J. F. 1790. Linné, Syst. Nat. ed. 13, 1(4): 1517-2224
- Gray, B. 1968. Forest tree and insect pests in the Territory of Papua New Guinea. - Pacific Insects 10: 301-323  
-- & F. R. Wylie 1974. Forest tree and timber insect pests in Papua New Guinea. II. - Pacific Insects 16: 67-115
- Gressitt, J. L. 1957. Hispine beetles from the South Pacific (Coleoptera: Chrysomelidae). - Nova Guinea, n. ser. 8(2): 205-324, 1 pl.
- 1959. Host relations and distribution of New Guinea hispine beetles. - Proc. Hawaii. Entomol. Soc. 17: 70-75  
-- 1960. Papuan-West Polynesian hispine beetles (Chrysomelidae). - Pacific Insects 2(1): 1-90  
-- 1963. Hispine beetles (Chrysomelidae) from New Guinea. - Pacific Insects 5(3): 591-714  
-- 1965a. Chrysomelid beetles from the Papuan Subregion, 1. (Sagrinae, Zeugophorinae, Criocerinae). - Pacific Insects 7(1): 131-189  
-- 1965b. Chrysomelid beetles from the Papuan Subregion, 2. (Clytrinae, Cryptocephalinae, Chlamisinae). - Pacific Insects 7(3): 387-449  
-- 1967a. Chrysomelid beetles from the Papuan Subregion, 4 (Eumolpinae, 2). - Pacific Insects 9(2): 295-340  
-- 1967b. Chrysomelid beetles from the Papuan Subregion, 5 (Eumolpinae, 3). - Pacific Insects 9(3): 551-562  
-- & A. D. Hart 1974. Chrysomelid beetles from the Papuan Subregion, 8 (Chrysomelinae, 1). - Pacific Insects 16(2-3): 261-306  
-- & R. W. Hornabrook 1977. Handbook of Common New Guinea Beetles. - Wau Ecology Inst. Handbook 2: 1-87
- Hawkeswood, T. J. 1988. A survey of the leaf beetles (Coleoptera: Chrysomelidae) from the Townsville district, northern Queensland, Australia. - Giorn. Ital. Entomol. 4: 93-112
- 1991. Observations on the biology of *Stethopachys papuana* Gressitt associated with the orchid *Spathoglottis rivularis* Schlect. (Orchidaceae) in Papua New Guinea. - Spixiana 14: 283-291

- Jacoby, M. 1886. Descriptions of new genera and species of phytophagous Coleoptera from the Indo-Malayan and Austro-Malayan subregions, contained in the Genoa Civic Museum. - *Ann. Mus. Civ. Genova* 24: 41-128
- 1894. Descriptions of new genera and species of phytophagous Coleoptera obtained by W. Doherty in the Malayan Archipelago. - *Novitates Zool.* 1: 267-330
- 1895. Descriptions of new species of phytophagous Coleoptera from the Indo- and Austro-Malayan regions. - *Stettiner Entomol. Ztg.* 56: 52-80
- 1904. Descriptions of new genera and species of phytophagous Coleoptera obtained by Dr. Loria in New Guinea. - *Ann. Mus. Civ. Storia Nat. Genova* 41: 469-514
- Jolivet, P. 1971. La Nouvelle-Guinée Australienne introduction Ecologique et Entomologique. - *Cah. Pacif.* 15: 41-70, pls. 1-7
- 1974. Les Chrysomes des Araliacees (Coleoptera). - *Bull. Mens. Soc. Linn. Lyon* 43: 113-120
- 1977. Sélection trophique chez les Eupoda (Coleoptera Chrysomelidae). - *Bull. Mens. Soc. Linn. Lyon* 46(9): 321-336
- 1978. Sélection trophique chez les Clytrinae, Cryptocephalinae et Chlamisinae (*Camptosoma*) et les Lamprosomatinae (*Cyclica*) (Coleoptera Chrysomelidae). - *Acta Zool. Path. Antverp.* 70: 167-200
- 1983. Un hemimymecophyte a chrysomelides (Coleoptera) du sud-est Asiatique, *Clerodendrum fragrans* (Vent.) Willd. (Verbenaceae). - *Bull. Mens. Soc. Linn. Lyon* 52: 242-261
- 1987. Aperçu de la sélection trophique chez les Galerucinae (Coleoptera, Chrysomelidae). - *Bull. Ann. soc. Belg. Entomol.* 123: 283-307
- 1991. Sélection trophique chez les Alticinae (Coleoptera Chrysomelidae). - *Bull. Mens. Soc. Linn. Lyon* 60(1): 26-40, 60(2): 53-72
- , Petitpierre E. & M. Daccordi 1986. Les plantes-hôtes des Chrysomelinae (Coleoptera). Quelques nouvelles précisions et additions. - *Nouv. Rev. Entomol.* 3: 341-357
- Kimoto, S. 1989. Chrysomelidae (Coleoptera) of Thailand, Cambodia, Laos and Vietnam. IV. Galerucinae. - *Esakia* 27: 1-241
- , Ismay, J. W. & G. A. Samuelson 1984. Distribution of chrysomelid pests associated with certain agricultural plants in Papua New Guinea (Coleoptera). - *Esakia* 21: 49-57
- Kuntzen, H. 1913. Eine neue *Aesernia*. - *Arch. Naturgesch.* 78A(11): 94-95
- Lever, R. J. A. W. 1948. New insect pest records in the British Solomon Islands. - *Agric. J. Fiji* 19: 50-52
- Robbins, R. G. 1968. Vegetation of the Wewak-Lower Sepik Area, Papua New Guinea, Part VI. - *CSIRO, Melbourne. Land Research Series no. 22*: 109-124
- Samuelson, G. A. 1967. Alticinae of the Solomon Islands (Coleoptera: Chrysomelidae). - *Pacific Insects* 9(1): 139-174
- Seeno, T. N. & J. A. Wilcox 1982. Leaf beetle genera (Coleoptera: Chrysomelidae). - *Entomography* 1: 1-221
- Shute, S. L. 1983. Key to the genera of galerucine beetles of New Guinea, with a review of *Sastra* and related new taxa (Chrysomelidae). - *Bull. Brit. Mus. (Nat. Hist.)* 46(3): 205-266
- Simon-Thomas, R. T. 1964. Some aspects of the life history, genetics, distribution, and taxonomy of *Aspidomorpha adhaerens* (Weber, 1801) (Cassidinae, Coleoptera). - *Tijds. Entomol.* 107: 167-264
- Spaeth, F. 1903. Zusammenstellung der bisher von New-Guinea bekannt gewordenen Cassiden. - *Ann. Mus. Nat. Hung.* 1: 109-160
- 1909. Cassididae. - *Nova Guinea* 9(1): 27-29
- 1913. Cassididae. - *Nova Guinea* 9(3): 447-452
- 1914. Chrysomelidae: 16. Cassidinae. - *Coleopt. Cat.* 25(62): 1-182
- Szent-Ivany, J. J. H. 1956. New insect pest and host plant records in the Territory of Papua and New Guinea. - *Papua and New Guinea Agric. J.* 11: 82-87
- & R. M. Stevens 1966. Insects associated with *Coffea arabica* and some other crops in the Wau-Bulolo area of New Guinea. - *Papua and New Guinea Agric. J.* 18: 101-119
- Weber, F. 1801. *Observationes entomologicae.... Kiliae.* 116 p
- Weise, J. 1908. Coleoptera 2, Chrysomelidae. - *Nova Guinea* 5: 311-349. (Includes a checklist of New Guinea Chrysomelidae known at the time.)
- 1912. Chrysomeliden und Coccinelliden. - *Nova Guinea* 9: 423-446
- 1917. Chrysomeliden und Coccinelliden aus Nord-Neu-Guinea gesammelt von Dr. P. N. van Kampen und K. Gjellerup, in den Jahren 1910 und 1911. - *Tijds. Entomol.* 60: 192-224